

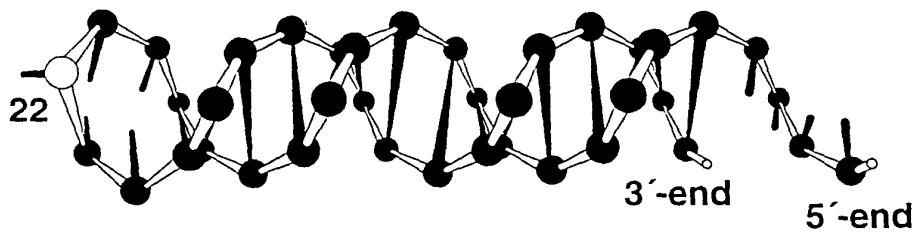
Figure 1

1/24

M-L-S-N-L-R-I-L-L-N-K-A-A-L-R-K-A-H-T-S-M-V-R-N-F-R-Y-G-K-P-V-Q-S-Q-L-K-P-R-D-L-C

amino-terminal end ← → carboxy-terminal end

22  
CCCCGGGTACCTTGCAGCCCTGGGCTCGCAAGGTACCC  
5'-end ← → 3'-end



08/765244

Figure 2

2/24

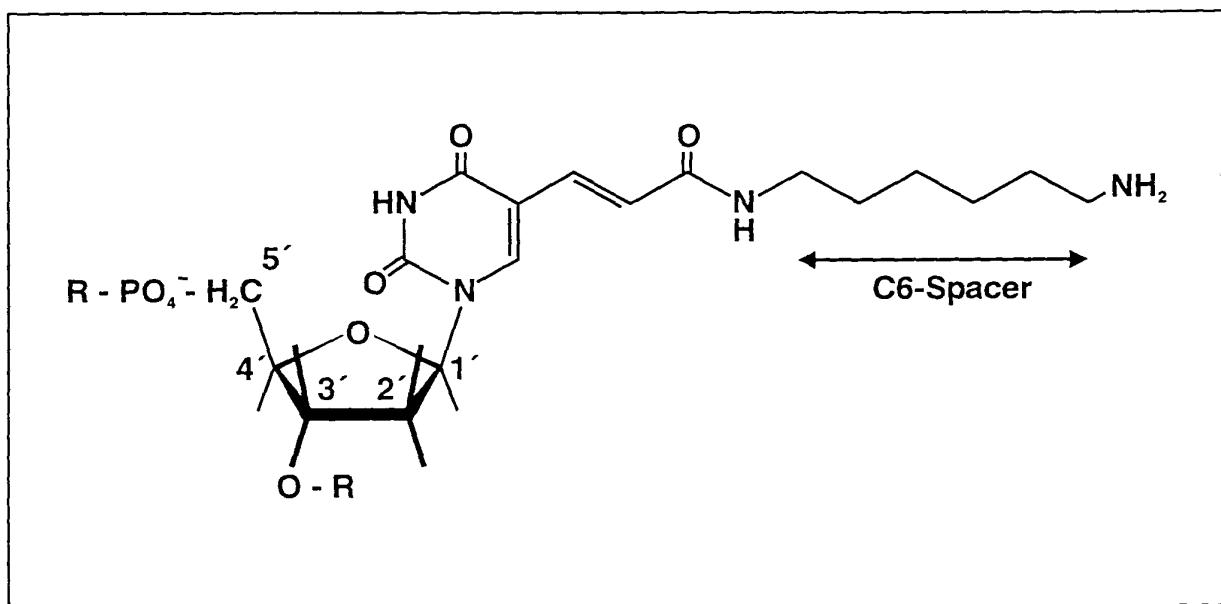
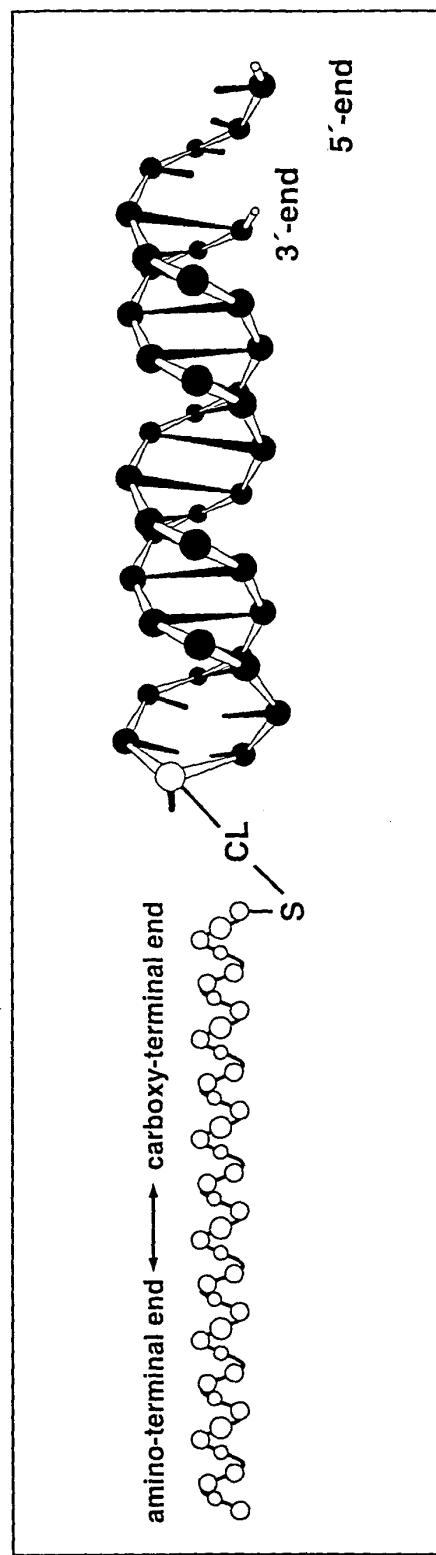


Figure 3

3/24



08/765244

Figure 4

4/24

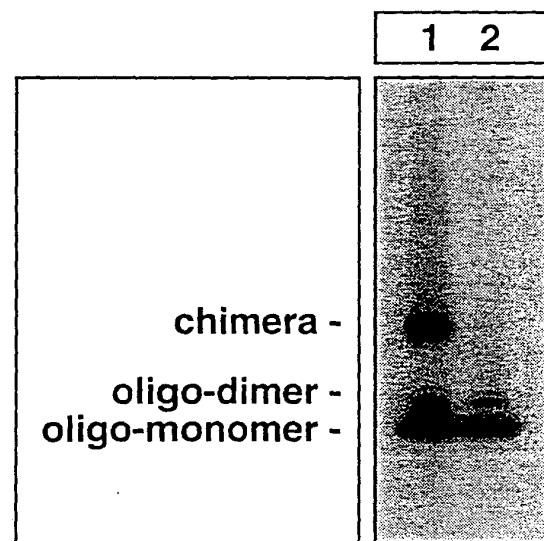
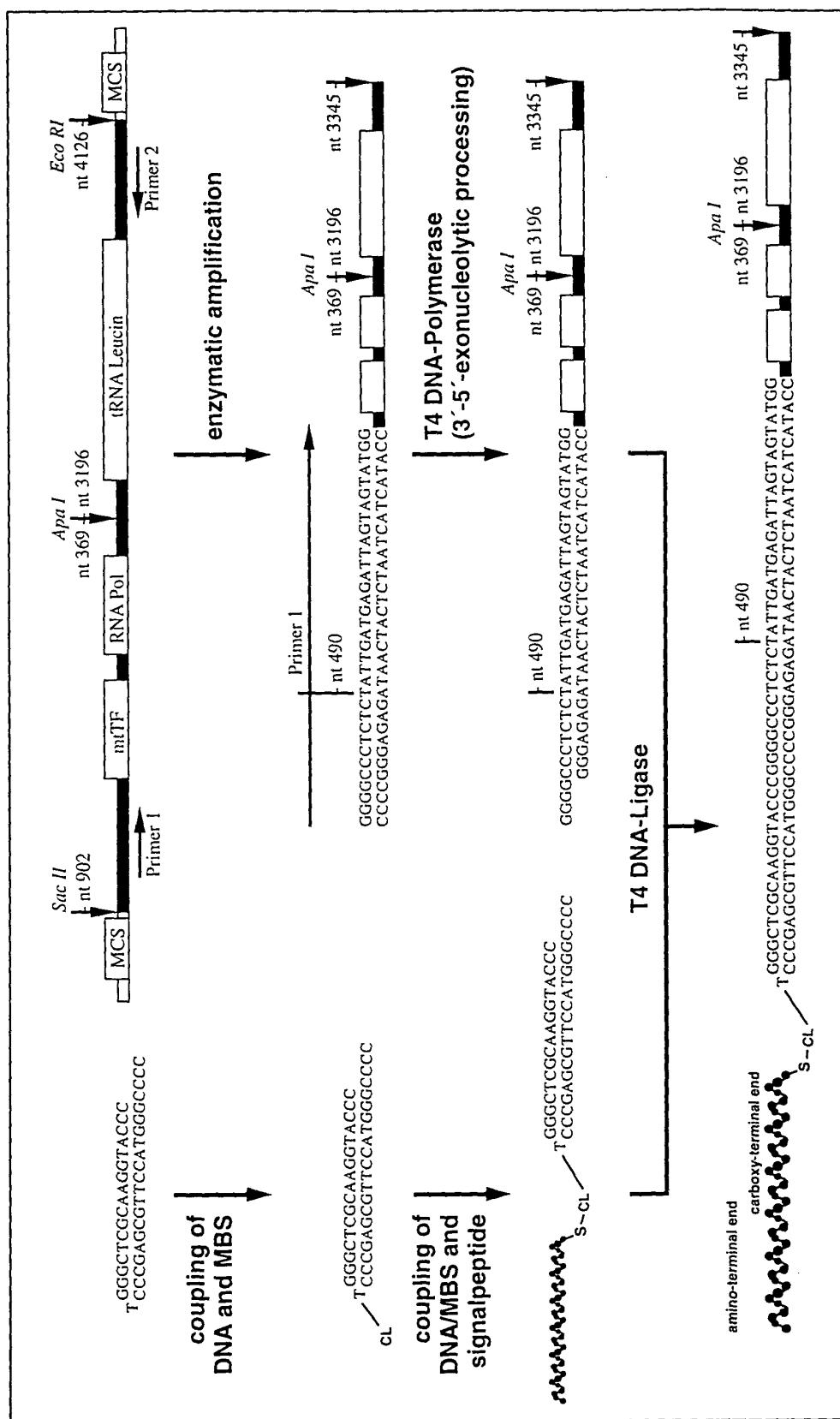


Figure 5a



08/765244

6/24

Figure 5b

10 20 30 40 50 60  
CCGGGGTGGC TGGCACGAAA TTGACCAACC CTGGGGTTAG TATAGCTTAG TAAACTTTC  
GGGCCACCG ACCGTGCTTT AACTGGTTGG GACCCCAATC ATATCGAATC ATTTGAAAG

70 80 90 100 110 120  
GTTTATTGCT AAAGGTTAAT CACTGCTGTT TCCCGTGGGG GTGTGGCTAG CTAAGCGTT  
CAAATAACGA TTTCCAATTA GTGACGACAA AGGGCACCCC CACACCGATC GATTGCAA

130 140 150 160 170 180  
TTGAGCTGCA TTGCTGCGTG CTTGATGCTT GTTCCTTTG ATCGTGGTGA TTAGAGGGT  
AACTCGACGT AACGACGCAC GAACTACGAA CAAGGAAAAC TAGCACCAC AATCTCCCA

190 200 210 220 230 240  
GAACACTCACTG GAACGGGGAT GCTTGCATGT GTAATCTTAC TAAGAGCTAA AGAAAGGCT  
CTTGAGTGAC CTTGCCCTA CGAACGTACA CATTAGAATG ATTCTCGATT TCTTCCGA

250 260 270 280 290 300  
AGGACCAAAC CTATTTGTTT ATGGGGTGAT GTGAGCCCGT CTAAACATTT CAGTGTATT  
TCCTGGTTTG GATAAACAAA TACCCCACTA CACTCGGGCA GATTTGTAAA GTCACATAA

310 320 330 340 350 360  
GCTTGAGGA GGTAAGCTAC ATAAAATGTG GGGGGTGTCT TTGGGGTTTG TTGGTCGG  
CGAAACTCCT CCATTCGATG TATTTGACAC CCCCCACAGA AACCCCAAAC AACCAAGCC

370 380 390 400 410 420  
GGTATGGGGT TAGCAGCGGT GTGTGTGTG TGGGTAGGAT GGGGGGGGT GTATTGATG  
CCATACCCCCA ATCGTCGCCA CACACACACG ACCCATCCTA CCCGCCCCCA CATAACTAC

430 440 450 460 470 480  
AGATTAGTAG TATGGGAGTG GGAGGGGAAA ATAATGTGTT AGTTGGGGGG GACTGTTAA  
TCTAATCATC ATACCCTCAC CCTCCCCTTT TATTACACAA TCAACCCCCC CTGACAATT

490 500 510 520 530 540  
AAGTGCATAC CGCCAAAAGA TAAAATTGAA AATCTGGTTA GGCTGGTGTG GGGCCCTTT  
TTCACGTATG GCGGTTTTCT ATTTTAAACT TTAGACCAAT CCGACCACAA CCCGGAAA

550 560 570 580 590 600  
GTCCCCACACC CACCCAAAGAA CAGGGTTTGT TAAGATGGCA GAGCCCGGTA TCGCATAAA  
CAGGGTGTGG GTGGGTTCTT GTCCCCAAACA ATTCTACCGT CTCGGGCCAT AGCGTATTT

610 620 630 640 650 660  
ACTTAAAATC TTACAGTCAG AGGTTCAATT CCTCTTCTTA ACAACATACC ATGGCCAAC  
TGAATTTGA AATGTCAGTC TCCAAGTTAA GGAGAAGAAT TGTTGTATGG TACCGGTTG

670 680 690 700 710 720  
CTCCTACTCC TCATTGTACC CATTCTAAC GCAATGGCAT TCCTAATGCT ACCGAACGA  
GAGGATGAGG AGTAACATGG GTAAGATTAG CGTTACCGTA AGGATTACGA TGGCTTGCT

730 740 750 760 770 780  
AAAATTCTAG GCTATATACA ACTACGAAA GGCCCCAACG TGGTAGGCC TACGGGCTA  
TTTAAGATC CGATATATGT TGATGCGTT CCAGGGTTGC ACCATCCGGG ATGCCGAT

790 800 810 820 830 840  
CTACAACCCT TCGCTGACGC CATAAAACTC TTCACCAAAG AGCCCTAAA CCCGCCACA  
GATGTTGGGA AGCGACTGCG GTATTTGAG AAGTGGTTTC TCAGGGGATTT GGGCGGTGT

08/765244

7/24

850 860 870 880 890 900  
TCTACCATCA CCCTCTACAT CACCGCCCCG ACCTTAGCTC TCACCATCGC CTTCTACTA  
AGATGGTAGT GGGAGATGTA GTGGCGGGGC TGGAATCGAG AGTGGTAGCG GAAGATGAT

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ACTTGGGGGG AGGGGTATGG GTTGGGGGAC CAGTTGGAGT TGGATCCGGA GATAAAATAA

970 980 990 1000 1010 1020  
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GATCGGTGGA GATCGGATCG GCAAATGAGT TAGGAGACTA GTCCCACTCG AGTTTGAGT

1030 1040 1050 1060 1070 1080  
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TTGATGCGGG ACTAGCCGCG TGACGCTCGT CATCGGGTT GTTAGAGTAT CTTCAGTGG

1090 1100 1110 1120 1130 1140  
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GATCGGTAGT AAGATGATAG TTGTAATGAT TATTCAACCGA GGAAATTGGA AGGTGGGAA

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1270 1280 1290 1300 1310 1320  
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CTTGATCAGA GTCCGAAGTT GTAGCTTATG CGGCGTCCGG GGAAGCGGGAA AAGAAGTAT

1330 1340 1350 1360 1370 1380  
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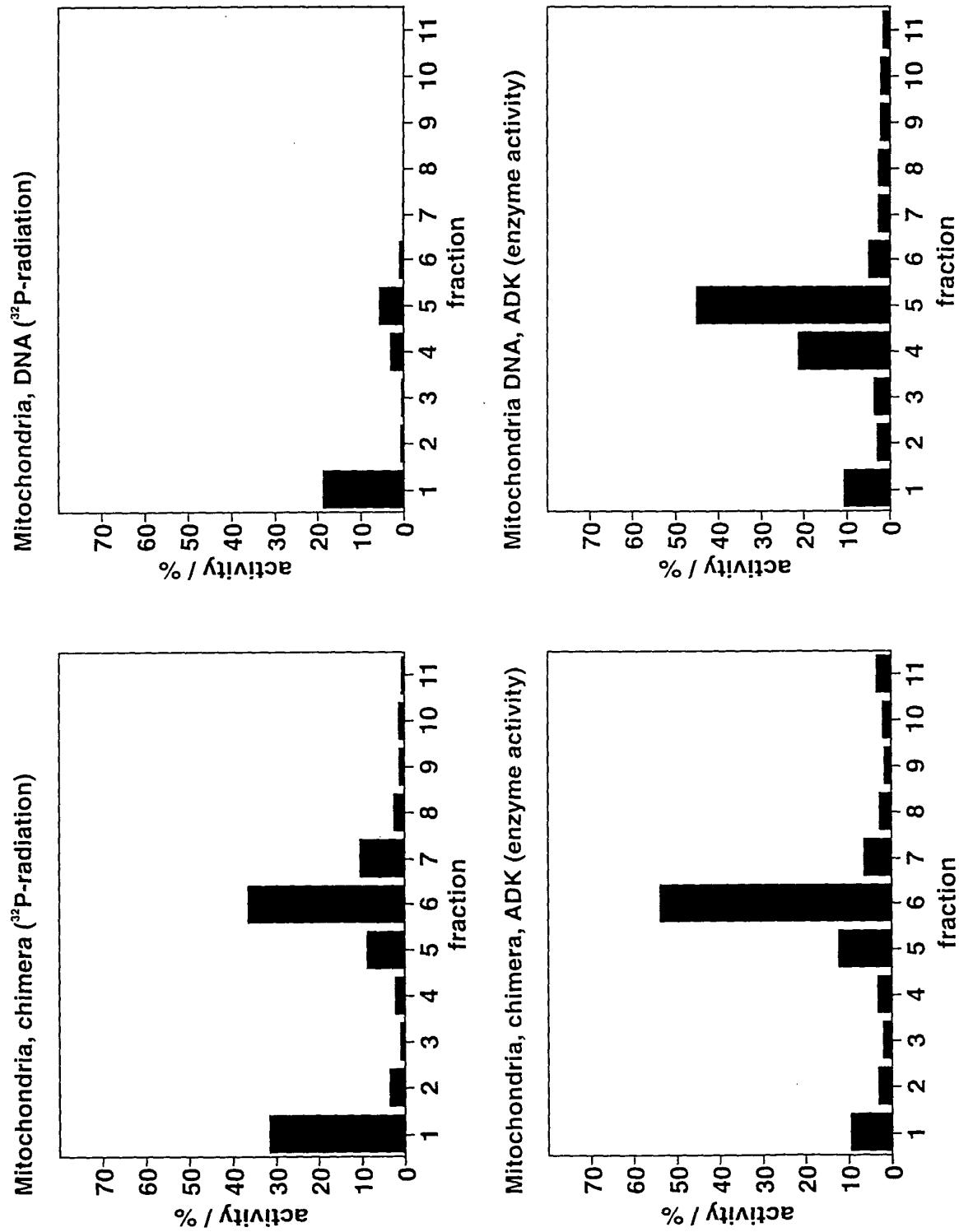
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TGTATACTGC GTGAGAGGGG ACTTGAGATG TGTTGTATAA AACAGTGGTT TGGGATGAA

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08/765244

8/24

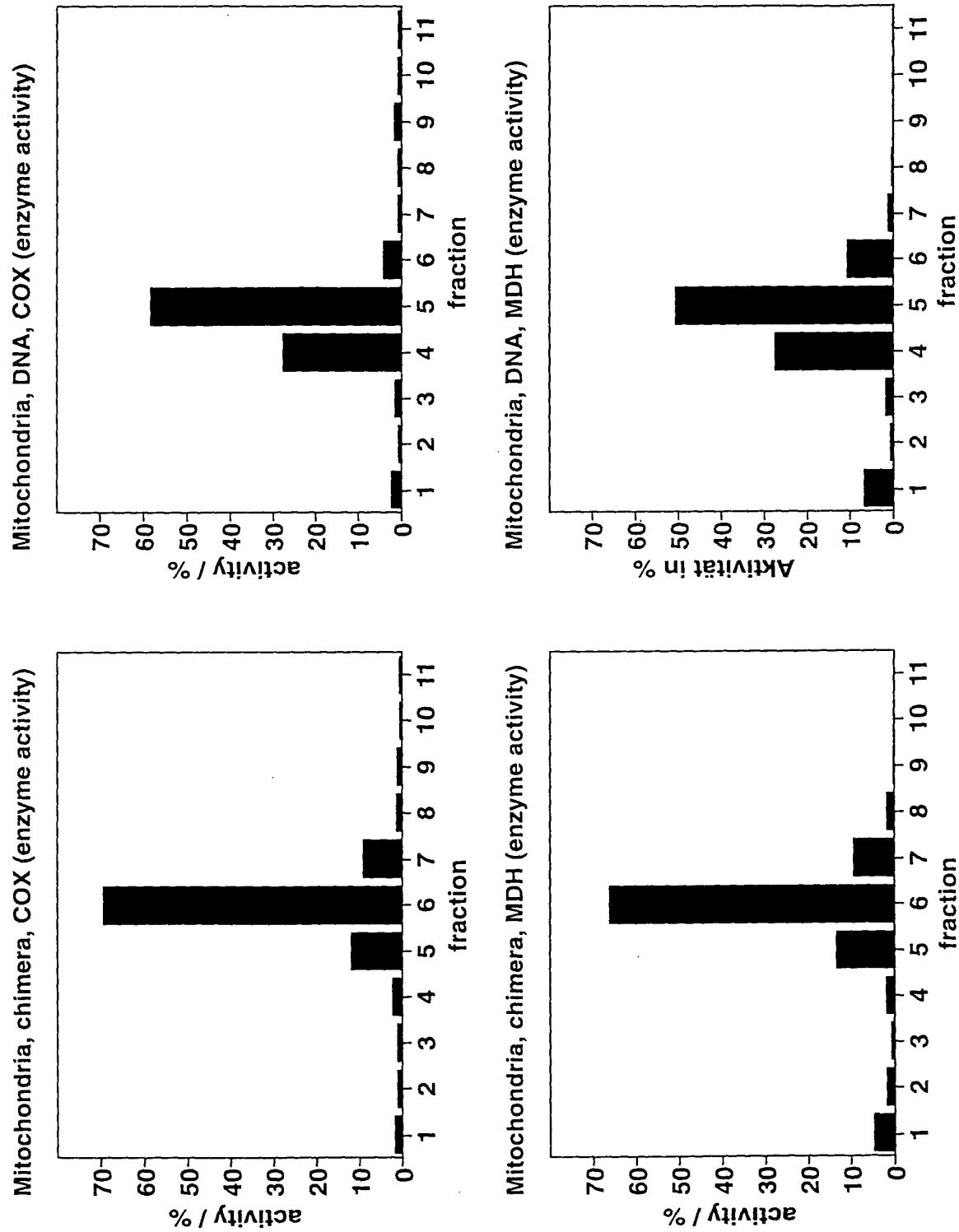
Figure 6a



08/765 244

Figure 6b

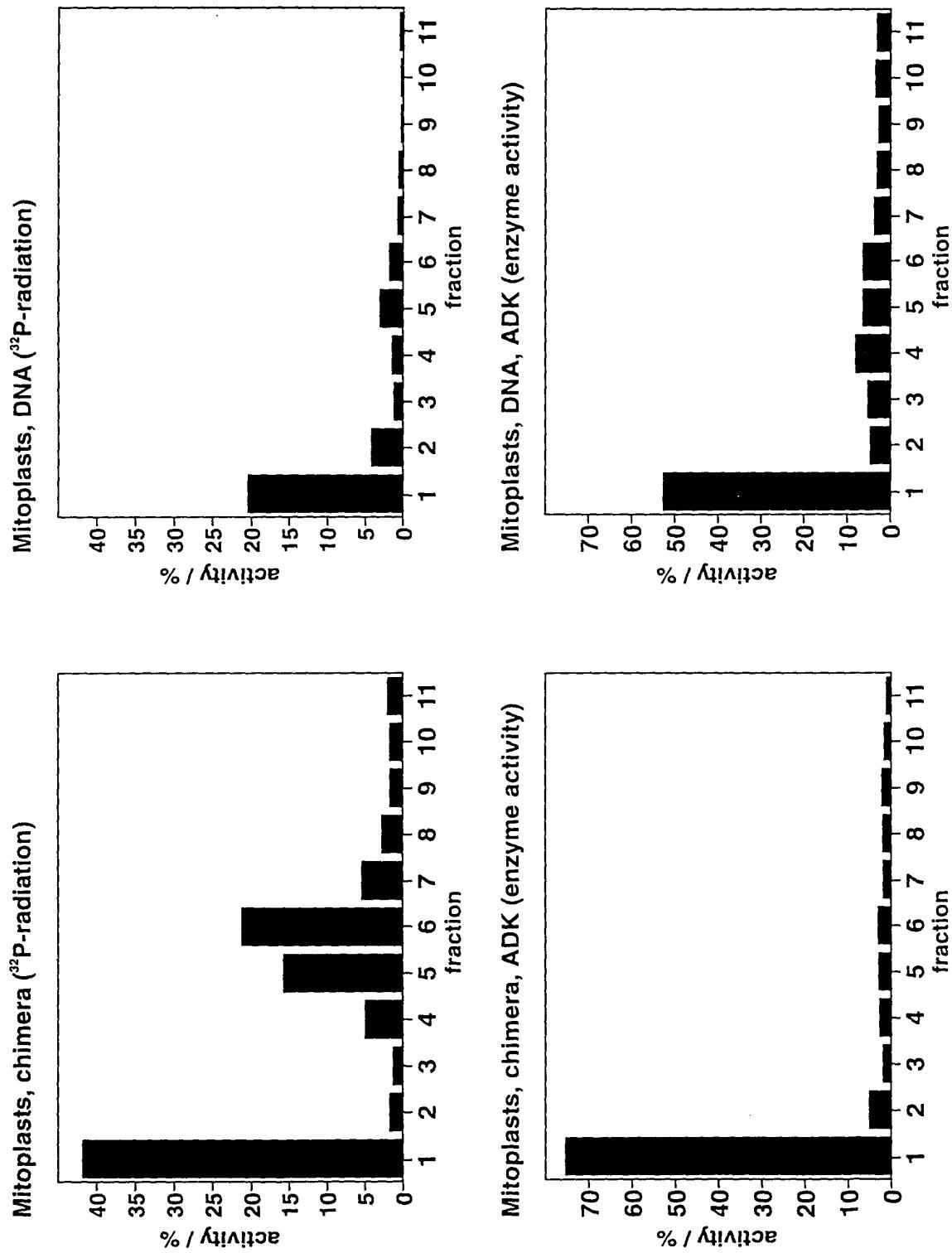
9/24



08/765244

Figure 7a

10/24

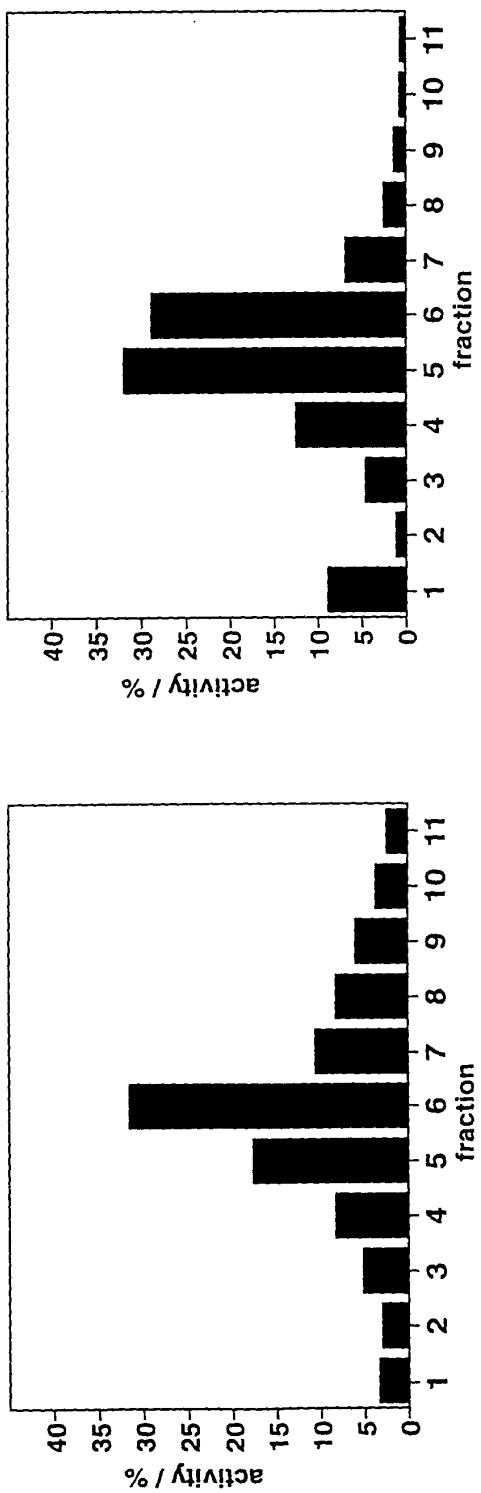


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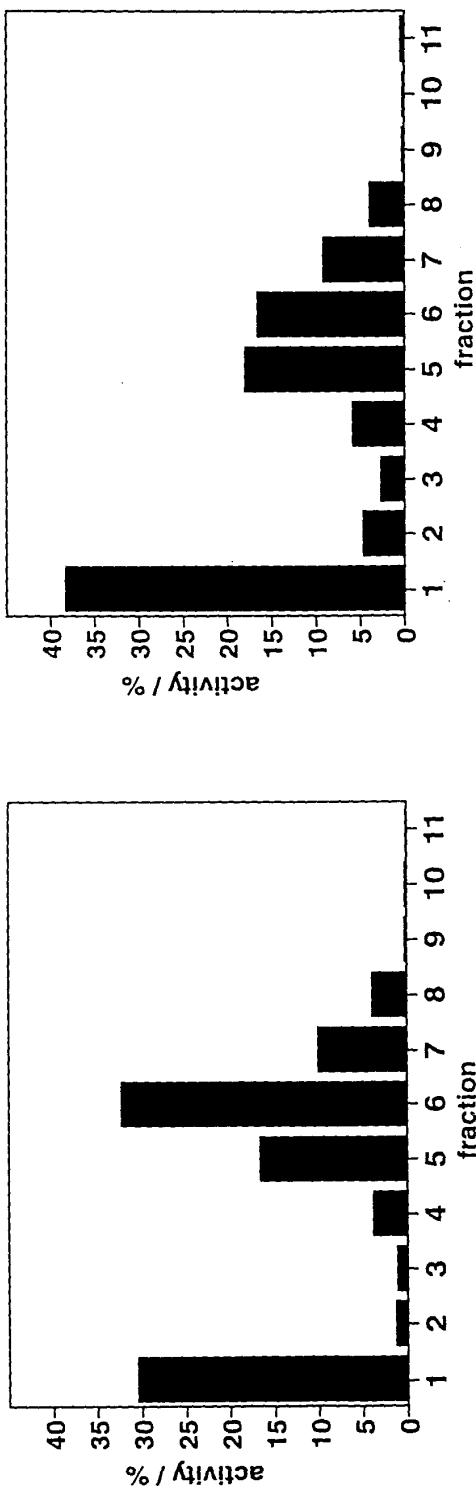
Figure 7b

11/24

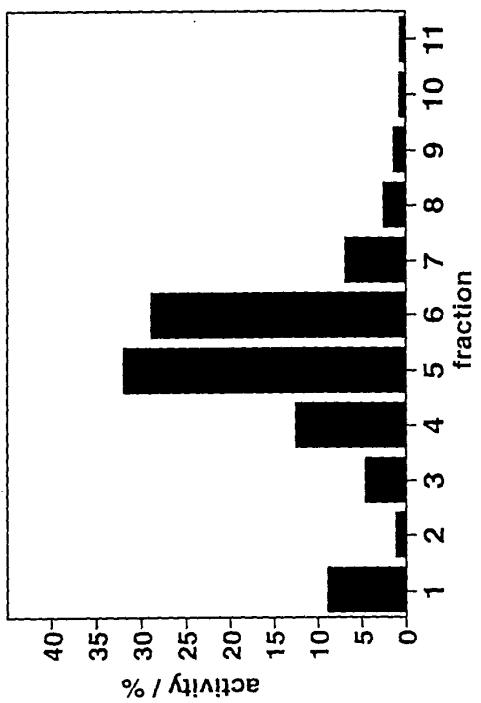
Mitoplasts, chimera, COX (enzyme activity)



Mitoplasts, chimera, MDH (enzyme activity)



Mitoplasts, DNA, COX (enzyme activity)



Mitoplasts, DNA, MDH (enzyme activity)

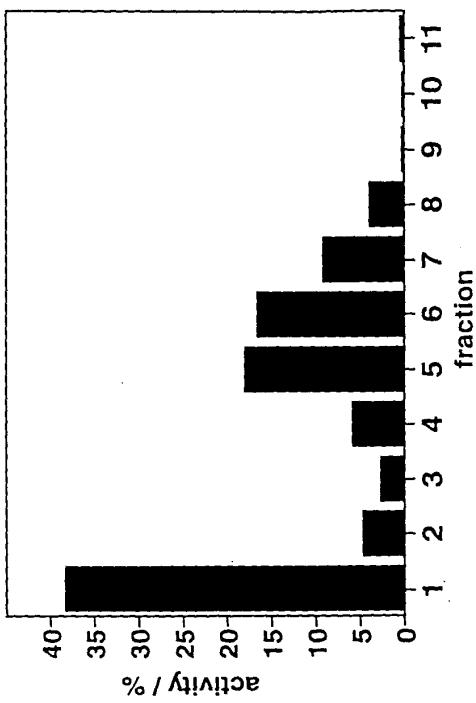
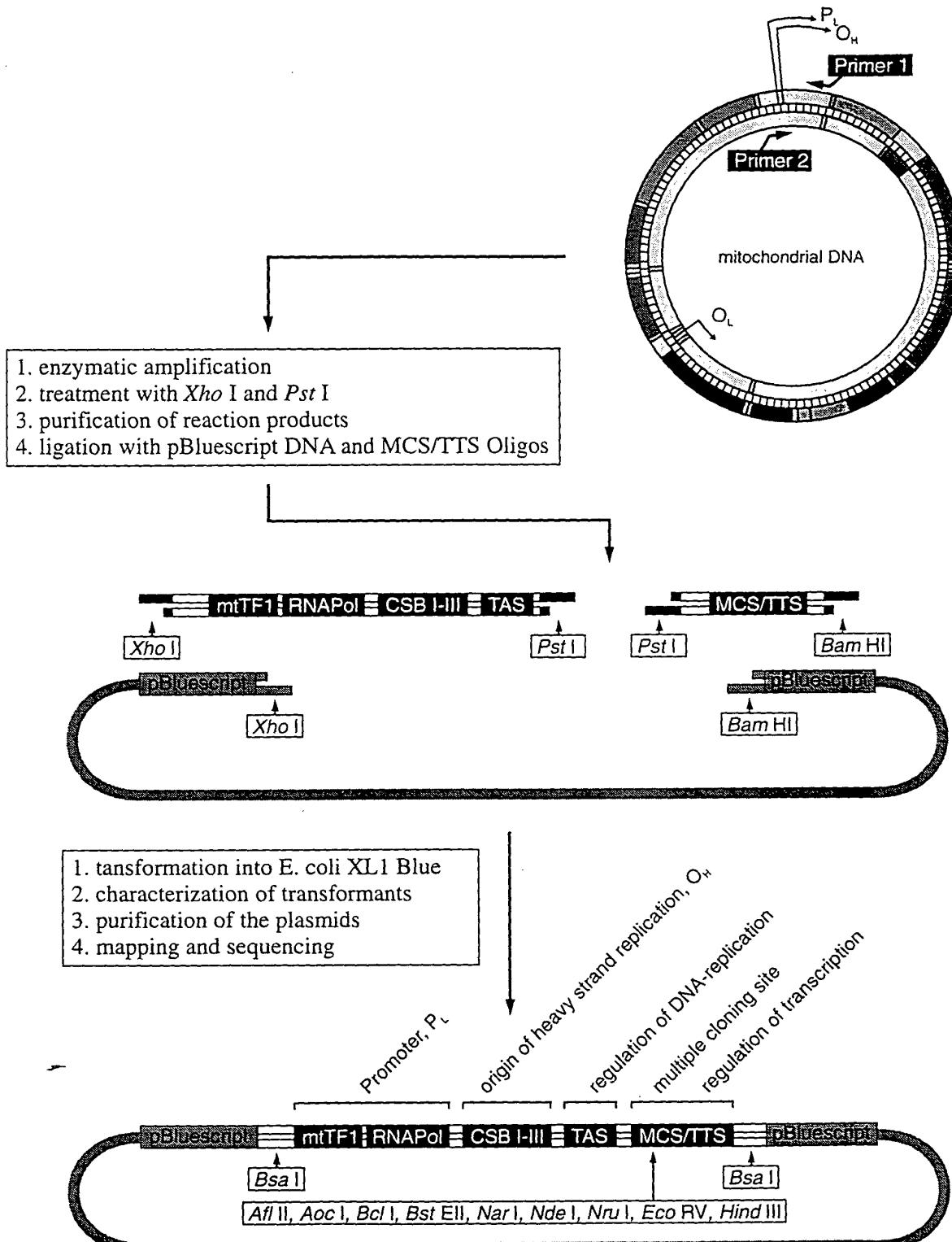


Figure 8

12/24

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030



08/765244

Figure 9

13/24



08/765244

Figure 10

14/24

10 20 30 40 50 60  
CTCGAGGGTC TCAGGGGCTA ATAGAAAGGC TAGGACCAAA CCTATTTGTT TATGGGGTGA  
GAGCTCCAG AGTCCCCGAT TATCTTCG ATCCTGGTT GGATAAACAA ATACCCACT

70 80 90 100 110 120  
TGTGAGCCCCG TCTAACACATT TTCAGTGTAT TGCTTTGAGG AGGTAAGCTA CATAAAACTGT  
ACACTCGGGC AGATTGTAA AAGTCACATA ACGAAACTCC TCCATTGAT GTATTGACA

130 140 150 160 170 180  
GGGGGGTGTGTC TTTGGGGTTT GTTGGGTTCG GGGTATGGGG TTAGCAGCGG TGTGTGTGTG  
CCCCCCACAG AAACCCCAA CCAACCAAGC CCCATACCCC AATCGTCGCC ACACACACAC

190 200 210 220 230 240  
CTGGGTAGGA TGGGGGGGGG TTGTATTGAT GAGATTAGTA GTATGGGAGT GGGAGGGGAA  
GACCCATCCT ACCCGCCCCC AACATAACTA CTCTAATCAT CATACCCCTCA CCCTCCCCCTT

250 260 270 280 290 300  
ATAATGTGT TAGTTGGGGG GTGACTGTAA AAAGTCATA CCGCCAAAAG ATAAAATTTG  
TTATTACACA ATCAACCCCC CACTGACAAT TTTCACGTAT GGCGGTTTC TATTTAAC

310 320 330 340 350 360  
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370 380 390 400 410 420  
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430 440 450 460 470 480  
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CACACCTTTC ACCGACACGT CTGTAAGTTA ACAATAATAA TACAGGATGT TCGTAATTAA

490 500 510 520 530 540  
ATTAACACA CTTTAGTAAG TATGTTGCC TGTAATATTG AACGTAGGTG CGATAAATAA  
TTAATTGTGT GAAATCATTC ATACAAGCGG ACATTATAAC TTGCATCCAC GCTATTTATT

550 560 570 580 590 600  
TAGGATGAGG CAGGAATCAA AGACAGATAC TGCACATAG GGTGCTCCGG CTCCAGCGTC  
ATCCTACTCC GTCCTTAGTT TCTGTCTATG ACGCTGTATC CCACGAGGCC GAGGTCGCAG

610 620 630 640 650 660  
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AGCGTTACGA TAGCGCACGT ATGGGGGGTC TGCTTTATG GTTTACGTAC CTCTCGAGGG

670 680 690 700 710 720  
GTGAGTGGTT AATAGGGTGA TAGACCTGTG ATCCATCGTG ATGTCTTATT TAAGGGGAAC  
CACTCACCAA TTATCCACT ATCTGGACAC TAGTAGCAC TACAGAATAA ATTCCCCTTG

730 740 750 760 770 780  
GTGTGGGCTA TTTAGGCTTT ATGACCCCTGA AGTAGGAACC AGATGTCGGA TACAGTTCAC  
CACACCCGAT AAATCCGAAA TACTGGGACT TCATCCTGG TCTACAGCCT ATGTCAAGTG

08/765244

15/24

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AAATCGATGG GGGTTCACAA TACCCGGGCC TCGCTCCTCT CATCGTGAGA ACACGCCCTA

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TAAC TAAAGT GCCTCCTACC ACCAGTTCCC TGGGGATAGA CTCCCCCAG TAGGTACCCC

910 920 930 940 950 960  
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TGCTCTTCCC TAAACTGACA TTACACGATA CATGCCATT ACCGAAATAC ATGATACATG

970 980 990 1000 1010 1020  
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1030 1040 1050 1060 1070 1080  
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1090 1100 1110 1120 1130 1140  
TTTGATGTGG ATTGGTTTT TATGTACTAC AGGTGGTCAA GTATTTATGG TACCGTACAA  
AAACTACACC TAACCCAAAA ATACATGATG TCCACCAGTT CATAAAATACC ATGGCATGTT

1150 1160 1170 1180 1190 1200  
TATTGATGGT GGCTGGCAGT AATGTACGAA ATACATAGCG GTTGGTGTATG GGTGAGTCAA  
ATAAGTACCA CCGACCGTCA TTACATGCTT TATGTATCGC CAACAACTAC CCACTCAGTT

1210 1220 1230 1240 1250 1260  
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ATGAACCCAC CATGGGTTA GACGAAGGGG TACTTTCTTG TCTCTTATCA AATTTAATCT

1270 1280 1290 1300 1310 1320  
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TAGAATCGAA ACCCACGATT ACCCACCTCAA TTTCTGAAAA AGAGACTAAA CAGGAACCTT

1330 1340 1350 1360 1370 1380  
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TTTCCAAAAG TAGAGGCCAA ATGTTCTGAC CACATAATCG ACGTCTATAG CGCTTCGAAT

1390 1400 1410 1420 1430 1440  
AGGCGCCTCA GGTCAACCATA TGATCATTG TTAAGATGGC AGAGCCCGGT AATCGCATAA  
TCCGCGGAGT CCAGTGGTAT ACTAGTAAAC AATTCTACCG TCTCGGGCCA TTAGCGTATT

1450  
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TTACTCTGGC CTAGG

Figure 11

16/24

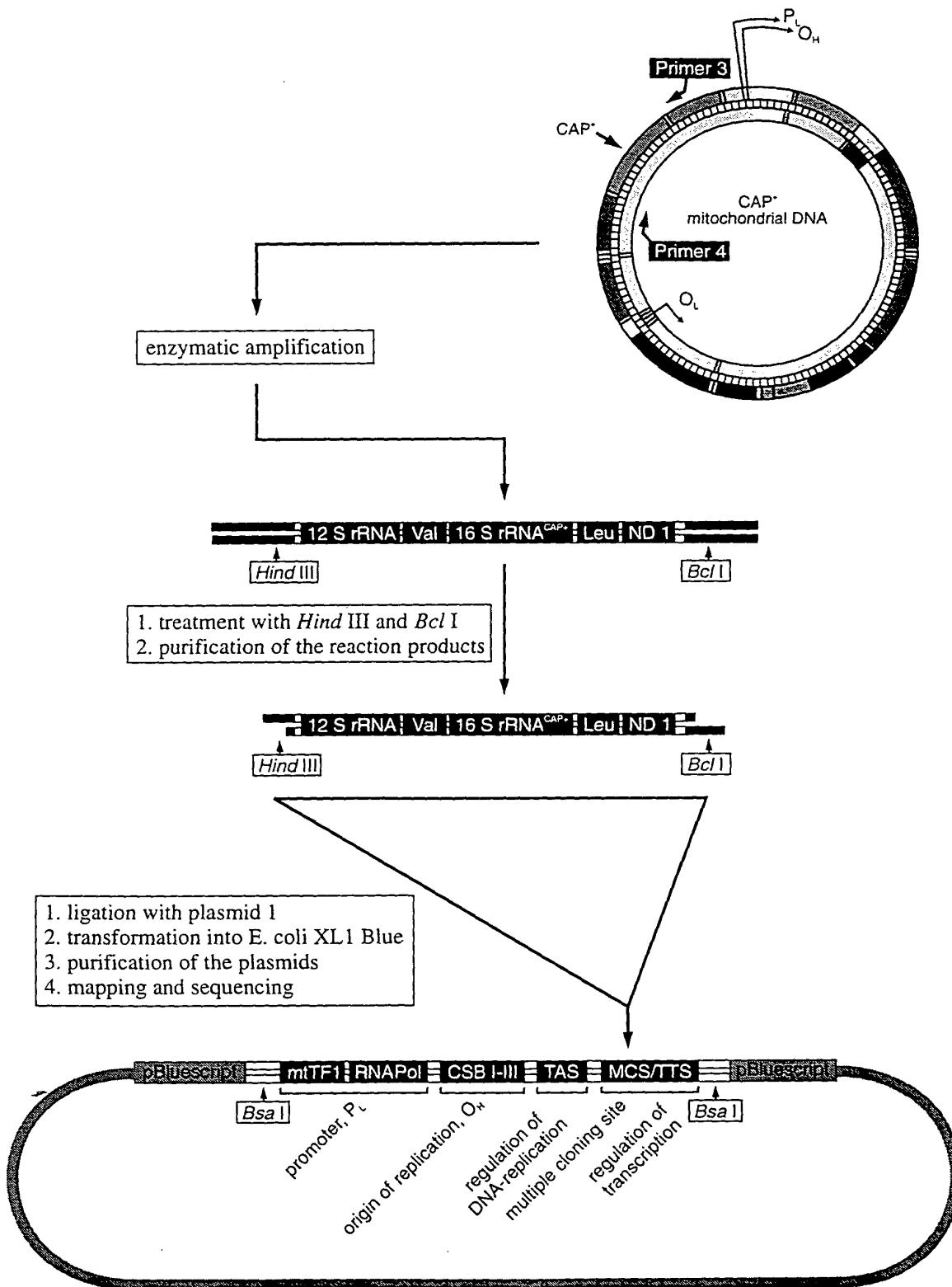
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Figure 12

17/24

10 20 30 40 50 60  
 CTCGAGGGTC TCAGGGGCTA ATAGAAAGGC TAGGACCAAA CCTATTTGTT TATGGGGTGA  
 GAGCTCCCAG AGTCCCCGAT TATCTTCCG ATCCTGGTTT GGATAAACAA ATACCCCACT  
  
 70 80 90 100 110 120  
 TGTGAGGCCG TCTAAACATT TTCAGTGTAT TGCTTGAGG AGGTAAGCTA CATAAACTGT  
 ACACTCGGGC AGATTGTAA AAGTCACATA ACGAAACTCC TCCATTGAT GTATTGACA  
  
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 CCCCCCACAG AAACCCCAA CCAACCAAGC CCCATACCCC AATCGTCGCC ACACACACAC  
  
 190 200 210 220 230 240  
 CTGGGTAGGA TGGGCGGGGG TTGTATTGAT GAGATTAGTA GTATGGGAGT GGGAGGGGAA  
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 250 260 270 280 290 300  
 AATAATGTGT TAGTTGGGG GTGACTGTAT AAAGTGCATA CCGCCAAAAG ATAAAATTG  
 TTATTACACA ATCAACCCCC CACTGACAAT TTTCACGTAT GGCGGTTTC TATTAAAC  
  
 310 320 330 340 350 360  
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 TTTAGACCAA TCCGACCACA ATCCCAAGAA ACAAAAACCC CAAACCGTCT CTACACAAAT  
  
 370 380 390 400 410 420  
 AGTGCTGTGG CCAGAACCGG GGGAGGGGGG GTTGGTGGAA AATTTTTGT TATGATGTCT  
 TCACGACACC GGTCTCGCC CCCTCCCCC CAAACCACCT TTAAAAAACAA ATACTACAGA  
  
 430 440 450 460 470 480  
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 CACACCTTTC ACCGACACGT CTGTAAGTTA ACAATAATAA TACAGGATGT TCGTAATTAA  
  
 490 500 510 520 530 540  
 AATTAACACA CTTTAGTAAG TATGTTCGCC TGTAATATTG AACGTAGGTG CGATAAAATAA  
 TTAATTGTGT GAAATCATTC ATACAAGCGG ACATTATAAC TTGCATCCAC GCTATTTATT  
  
 550 560 570 580 590 600  
 TAGGATGAGG CAGGAATCAA AGACAGATAC TGCGACATAG GGTGCTCCGG CTCCAGCGTC  
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 610 620 630 640 650 660  
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 AGCGTTACGA TAGCGCACGT ATGGGGGGTC TGCTTTATG GTTACGTAC CTCTCGAGGG  
  
 670 680 690 700 710 720  
 GTGAGTGGTT AATAGGGTGA TAGACCTGTG ATCCATCGTG ATGTCTTATT TAAGGGAAAC  
 CACTCACCAA TTATCCACT ATCTGGACAC TAGTAGCAC TACAGAATAA ATTCCCCTTG  
  
 730 740 750 760 770 780  
 GTGTGGGCTA TTTAGGCTTT ATGACCCCTGA AGTAGGAACC AGATGTCGGA TACAGTTCAC  
 CACACCCGAT AAATCCGAAA TACTGGGACT TCATCCTTGG TCTACAGCCT ATGTCAAGTG  
  
 790 800 810 820 830 840  
 TTTAGCTACC CCCAAGTGTGTT ATGGGGCCCGG AGCGAGGAGA GTAGCACTCT TGTGCGGGGAT  
 AAATCGATGG GGGTCACAA TACCCGGGCC TCGCTCCTCT CATCGTGAGA ACACGCCCTA

18/24

850 860 870 880 890 900  
 ATTGATTCAGGGAGGG TGGTCAAGGG ACCCTATCT GAGGGGGGTC ATCCATGGGG  
 TAACTAAAGT GCCTCCTACC ACCAGTTCCC TGGGGATAGA CTCCCCCAG TAGGTACCC  
  
 910 920 930 940 950 960  
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 TGCTCTTCCC TAAACTGACA TTACACGATA CATGCCATT ACCGAAATAC ATGATACATG  
  
 970 980 990 1000 1010 1020  
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 1450 1460 1470 1480 1490 1500  
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08/765244

19/24

1690 1700 1710 1720 1730 1740  
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1750 1760 1770 1780 1790 1800  
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GATTCTTGTC GATTTCTCG TGTGGCAGA TACATCGTT TATCACCCCTT CTAATATCC

1810 1820 1830 1840 1850 1860  
TAGAGGCGAC AACCTACCG AGCCTGGTGA TAGCTGGTTG TCCAAGATAG AATCTTAGTT  
ATCTCCGCTG TTTGGATGGC TCGGACCAC TACGACCAAC AGGTTCTATC TTAGAATCAA

1870 1880 1890 1900 1910 1920  
CAACTTTAAA TTTGCCACCA GAACCCTCTA AATCCCCTTG TAAATTTAAC TGTAGTCCA  
GTTGAAATTAA AACGGGTGT CTTGGGAGAT TTAGGGAAC ATTTAAATTG ACAATCAGGT

1930 1940 1950 1960 1970 1980  
AAGAGGAACA GCTCTTGGA CACTAGGAAA AACCTTGTA GAGAGAGTAA AAAATTTAAC  
TTCTCCTTGT CGAGAACCT GTGATCCTTT TTTGGAACAT CTCTCTCATT TTTAAATTG

1990 2000 2010 2020 2030 2040  
ACCCATAGTA GGCCTAAAG CAGCCACCAA TTAAGAAAGC GTTCAAGCTC AACACCCACT  
TGGGTATCAT CGGGATTTTC GTCGGTGGTT AATTCTTCG CAAGTCGAG TTGTTGGTGA

2050 2060 2070 2080 2090 2100  
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TGGATTTTTT AGGGTTGTA TATTGACTTG AGGAGTGTGG GTTAACCTGG TTAGATAGTG

2110 2120 2130 2140 2150 2160  
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GGATATCTTC TTGATTACAA TCATATTCAAT TGTACTTTG TAAGAGGAGG CGTATTCGGA

2170 2180 2190 2200 2210 2220  
GCGTCAGATT AAAACACTGA ACTGACAATT AACAGCCAA TATCTACAAT CAACCAACAA  
CGCAGTCTAA TTTTGTGACT TGACTGTTAA TTGTCGGGTT ATAGATGTTA GTTGGTTGTT

2230 2240 2250 2260 2270 2280  
GTCATTATTA CCCTCACTGT CAACCCAAACA CAGGCATGCT CATAAGGAAA GGTAAAAAA  
CAGTAATAAT GGGAGTGACA GTTGGGTTGT GTCCGTACGA GTATTCCCTT CCAATTTC

2290 2300 2310 2320 2330 2340  
AGTAAAAGGA ACTCGGCAAA TCTTACCCCG CCTGTTTACCA AAAAACATCA CCTCTAGCAT  
TCATTTCCCT TGAGCCGTT AGAATGGGGC GGACAAATGG TTTTGTAGT GGAGATCGTA

2350 2360 2370 2380 2390 2400  
CACCAAGTATT AGAGGCACCG CCTGCCAGT GACACATGTT TAACGGCCGC GGTACCCCTAA  
GTGGTCATAA TCTCCGTGGC GGACGGGTCA CTGTGTACAA ATTGCCGGCG CCATGGGATT

2410 2420 2430 2440 2450 2460  
CCGTGCAAAG GTAGCATAAT CACTGTTCC TTAAATAGGG ACCTGTATGA ATGGCTCCAC  
GGCACGTTTC CATCGTATTA GTGAACAAGG AATTATCCC TGGACATACT TACCGAGGTG

2470 2480 2490 2500 2510 2520  
GAGGGTTTCAG CTGTCTCTTA CTTTTAACCA GTGAAATTGA CCTGCCGTG AAGAGGCGGG  
CTCCCAAGTC GACAGAGAAT GAAAATTGGT CACTTTAACT GGACGGGCAC TTCTCCGCC

08/765244

20/24

2530 2540 2550 2560 2570 2580  
CATAACACAG CAAGACGAGA AGACCTATG GAGCTTTAAT TTATTAATGC AAACAGTACC  
GTATTGTGTC GTTCTGCTCT TCTGGGATAC CTCGAAATTA AATAATTACG TTTGTCATGG

2590 2600 2610 2620 2630 2640  
TAACAAACCC ACAGGTCCTA AACTACAAA CCTGCATTAA AAATTCGGT TGGGGCGACC  
ATTGTTGGG TGTCCAGGAT TTGATGGTT GGACGTAATT TTTAAAGCCA ACCCCGCTGG

2650 2660 2670 2680 2690 2700  
TCGGAGCAGA ACCCAACCTC CGAGCAGTAC ATGCTAAGAC TTCAACCAGTC AAAGCGAACT  
AGCCTCGTCT TGGGTTGGAG GCTCGTCATG TACGATTCTG AAGTGGTCAG TTTCGCTTGA

2710 2720 2730 2740 2750 2760  
ACTATACTCA ATTGATCCAA TAACTTGACC AACGGAACAA GTTACCCCTAG GGATAACAGC  
TGATATGAGT TAACTAGGTT ATTGAACCTGG TTGCCTTGTGTT CAATGGGATC CCTATTGTCG

2770 2780 2790 2800 2810 2820  
GCAATCCTAT TCTAGAGTCC ATATCAACAA TAGGGTTTAC GACCTCGATG TTGGATCAGG  
CGTTAGGATA AGATCTCAGG TATAAGTGTGTT ATCCCAAATG CTGGAGCTAC AACCTAGTCC

2830 2840 2850 2860 2870 2880  
ACATCCCGAT GGTGCAGCCG CTATTAAAGG TTCGTTTGTGTT CAACGATTAAGTCCTACAGT  
TGTAGGGCTA CCACGTCGGC GATAATTCC AAGCAAACAA GTTGCTAATT TCAGGATGCA

2890 2900 2910 2920 2930 2940  
GATCTGAGTT CAGACCGGAG TAATCCAGGT CGGTTTCTAT CTACCTTCAA ATTCCCTCCCT  
CTAGACTCAA GTCTGGCCTC ATTAGGTCCA GCCAAAGATA GATGGAAGTT TAAGGAGGGA

2950 2960 2970 2980 2990 3000  
GTACGAAAGG ACAAGAGAAA TAAGGCCTAC TTCACAAAGC GCCTTCCCCC GTAAATGATA  
CATGCTTTCC TGTTCTCTT ATTCCGGATG AAGTGTTCG CGGAAGGGGG CATTTACTAT

3010 3020 3030 3040 3050 3060  
TCATCTCAAC TTAGTATTAT ACCCACACCC ACCCAAGAAC AGGGTTTGTGTT AAGATGGCAG  
AGTAGAGTTG AATCATAATA TGGGTGTGGG TGGGTTCTTG TCCCAAACAA TTCTACCGTC

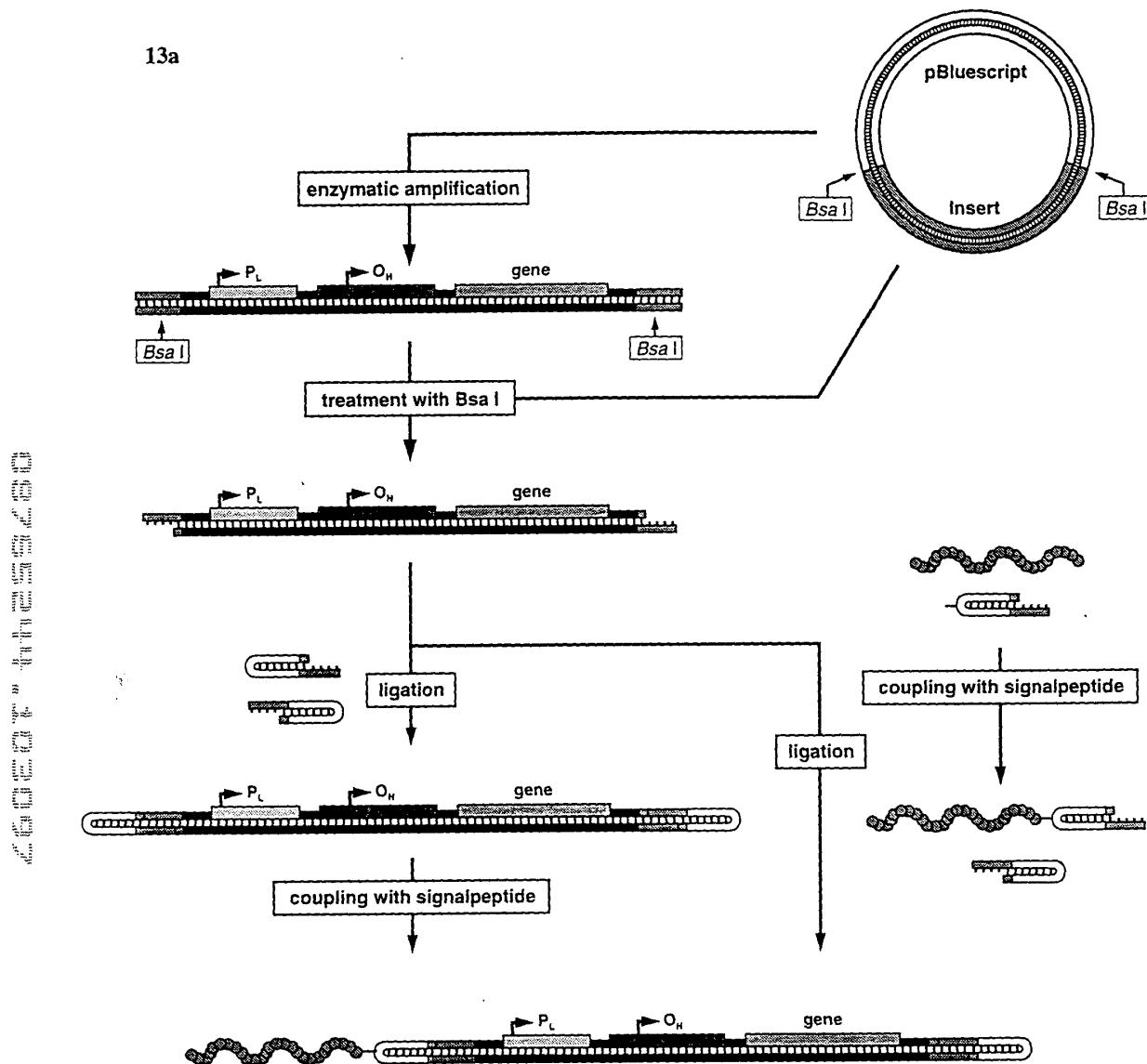
3070 3080 3090 3100 3110 3120  
AGCCCGGTAA TCGCATAAAA CTTAAAACCTT TACAGTCAGA GGTTCAATTCTCTTCAA  
TCGGGCCATT AGCGTATTTT GAATTTTGAA ATGTCAGTCT CCAAGTTAAC GAGAAGAATT

3130 3140 3150 3160 3170 3180  
CAACATACCC ATGGCCAACC TCCTACTCCT CATTGTACCC ATTCTAATCG CAATGGCTGA  
GTTGTATGGG TACCGGTTGG AGGATGAGGA GTAACATGGG TAAGATTAGC GTTACCGACT

3190 3200 3210 3220 3230  
TCATTTGTTA AGATGGCAGA GCCCGGTAAAT CGCATAAAAT GAGACCGGAT CC  
AGTAAACAAAT TCTACCGTCT CGGGCCATTAA GCGTATTTTA CTCTGGCTA GG

Figure 13

21/24



13b

CCCCGGGTACCTTGCAGAGCCC  
CCCATGGAACGCTCGGG

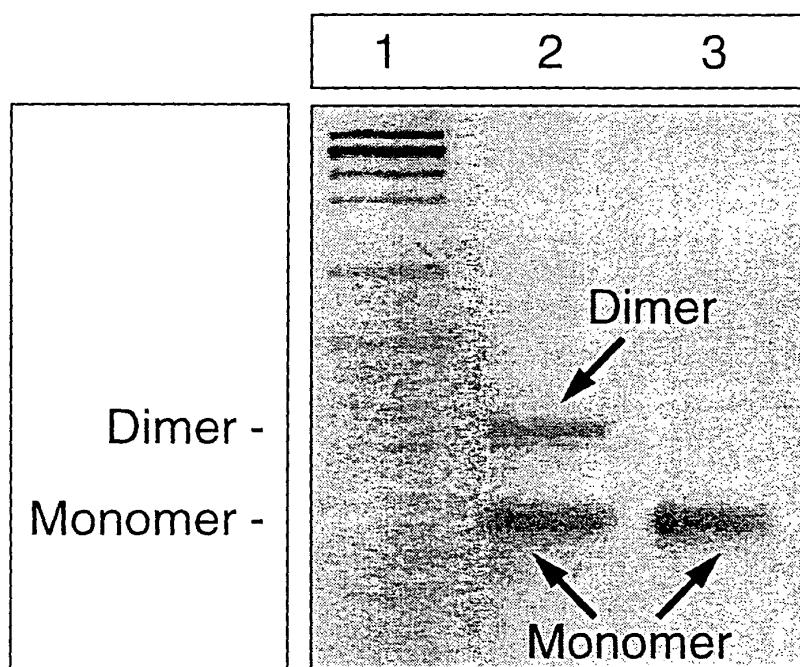
HP 1 (X=modified dT)

TTTTGCAGCTGGATCCGGGC  
CGTCGACCTAGGGCCCG

HP 2

Figure 14

22/24

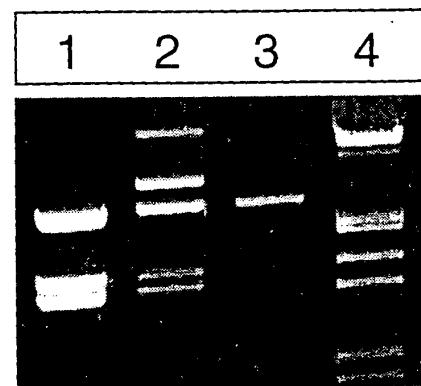


08/765244

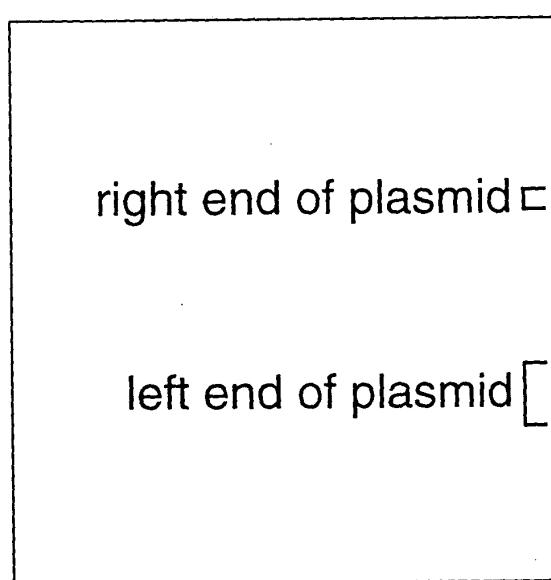
Figure 15

23/24

15a



15b



08/765244

Figure 16

24/24

